A3
HOLISTIC RENOVATION

A3.1
BUSINESS MODEL DEVELOPMENT FOR CUSTOMER-ORIENTED HOUSING RENOVATION

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ABSTRACT

Processes for ambitious energy-efficient housing renovation are at present often too fragmented between many SMEs and clients have difficulties handling all information. This brings communication, planning, coordination and execution problems. It is also difficult for customers to find single responsible parties offering integrated housing renovation as a service. Since innovative client-oriented services are already emerging in various European countries, also Belgian enterprises should explore business development opportunities for more client-oriented housing renovation.
The potential for so-called “One Stop Shops” that unburden the customer was explored in a European project, which led to defining tools for business modeling of customer-oriented integrated housing renovation services. The developed tools and new networking methods were recently used in the international “Business Zoo” workshop to explore business development opportunities and barriers together with Belgian and international enterprises. The experiences of ten working groups during this workshop are explained in this paper. The working groups detected various opportunities and barriers for Belgian business model development for integrated housing renovation as a client-oriented service. They developed initial business model canvases for integrated housing renovation,

exploring the collaboration between various market actors and targeting various customer segments.
The experiences showed that lead actors for One Stop Shop development in Belgium are not necessarily contractors. Depending on the targeted housing segment, new business development ideas also emerge from prefab-oriented companies, consultants, architect/ managers or network actors. From the demand side, various working groups identified important customer values for business development like better communication, speed, quality, improved comfort, energy performance guarantee and having one single contact point for the renovation. From the supply side, critical success factors for business model development were identified such as good planning and communication, education of the work force, integrating quality assurance, and carefully organized collaboration with partners.

1. INTRODUCTION

There is a big potential for energy savings in existing single family houses, and today the homeowners are faced with a variety of single renovation measures promoted by policy makers (subsidies for individual measures) and a range of various suppliers. Depending on their knowhow and interest regarding energy efficiency objectives, renovation supply side actors propose works varying from fixing a radiator to installing a heat pump to major renovation. Nowadays, a renovation project is mostly executed by many SMEs that do a certain part of the renovation measures, causing problems in terms of communication, interaction and execution of the works [1]. Typically, this can lead to time extensions for the needed work and cost escalation. Furthermore, homeowners are troubled with a lot of burden and they have to 'patch' various information sources together, like existing cases, contacts with building companies, quality assurance possibilities, financial support opportunities. As the homeowner lacks competence in planning a renovation that integrates various complementary measures or in investigating opportunities for time and cost savings resulting from integrated renovation, it seems that a market introduction of integrated renovation has to start with a consistent offer from the supply side, focused on unburdening of the client. There is a need to develop such new customer oriented business concepts which combine the available technical solutions, financing services, as well as the time efficiency, energy cost reduction and construction and installation quality expected by the client.
One of the goals of the ERANET-Eracobuild project "One Stop Shop - From demonstration projects towards volume market: Innovations for sustainable renovation" [2] was to stimulate supply side market development for integrated sustainable renovation of single family houses, particularly to unburden the client. The project was coordinated by the Passiefhuis-

Platform in Belgium, and the other partners contributing were: Belgian Building Research Institute, the consulting company Segel AS from Norway, Danish Technical University, VTT Technical Research Centre of Finland and VCB, Vlaamse Confederatie Bouw from Belgium. In the One Stop Shop project PHP, VCB and BBRI explored the specific needs of Belgian enterprises regarding this subject by using questionnaires [3, 4]. Furthermore, all One Stop Shop project partners analyzed opportunities and barriers of using new communication channels, by analyzing international websites that focus on offering renovation services to homeowners [5].

All One Stop Shop partners further explored who could be key actors in their countries for developing innovative housing renovation services [6]. Furthermore, a strong emphasis was put in the project on initiating collaboration between various stakeholders and SMEs, by specifically focusing on each country situation. The Belgian partners explored business collaboration opportunities and barriers by involving Belgian companies in novel networking methods. For example, discussions were based on filling in an 'interaction matrix' to explore collaboration between trades and sequence of works [7], or by showing business experiences and housing renovation cases to explore business collaboration in moderated group discussions [8, 9].

During the One Stop Shop project we discovered that companies emerge that engage in innovative services for integrated housing renovation. Successful market introduction of novel single-family housing renovation services was observed, particularly in the Nordic countries [10]. For example, in Norway the company Bolig Enøk emerged from an insulation manufacturer. As they lacked competence in sustainable heating systems, they later acquired a supplier of such systems. The company now finds new entrances in the market by offering renovation project management services to homeowners via do-it-yourself stores. In the One Stop Shop project, the Norwegian partners defined this "project management" approach as national case study of One Stop Shop business development, which was different from the examples found in Belgium (a "consultant" approach), Denmark (an "energy service" approach) and Finland (a "retail" approach) [11]. Using the experiences on business development previously studied in the Nordic project SuccessFamilies [12], the One Stop Shop partners developed a guideline for companies to help them to define business models for integrated renovation services [11, 13].

All these experiences showed us that for efficient business model generation it is important to clearly describe the stakeholders involved and the company in charge, the cooperation, the product and services supplied, the marketing and educational programs, as well as responsibility and quality assurance. Several seminars and networking

events have been very fruitful in order to get an overall picture of the market situation and opportunities for holistic renovation of single family housing. Special attention was given to the organization of the Business Zoo in Antwerp in April 2012 [8] in order to explore innovative business models for housing renovation in the Belgian context. In this paper we describe the outcomes of this event regarding business model generation for the part of the event that used the business model generation canvas as a tool [14]. We note that several collaboration opportunities were found simultaneously during this event using an 'animal gathering' tool. These results have already been described in other publications [6, 15].

2. RESEARCH METHOD

Osterwalder & Pigneur [14] have through an open innovation process together with 470 practitioners from 45 countries developed a general methodology for generating business models. They developed a useful tool from these experiences, called "business model canvas", which is shown in Figure 1. It consists of the following nine blocks: customer segment, value proposition, key activities, key partners, key resources, customer relationship, channels (communication, distribution and sales), cost structure, and revenue stream. The canvas and these building blocks were used during the Business Zoo to discuss the development of an enterprise offer or one-stop-shop service for energy efficient renovation. This process was facilitated by a moderator, who was trained beforehand to explain and guide the business model development process.

The Business Zoo event was held on 18th April 2012 in Antwerp, Belgium, and was attended by 88 participants, with about one third of participants originating from foreign countries (Austria, Denmark, Finland, Germany, Georgia, Netherlands, Norway, United Kingdom). The Business Zoo formed an international gathering with innovators interested in developing integrated renovation

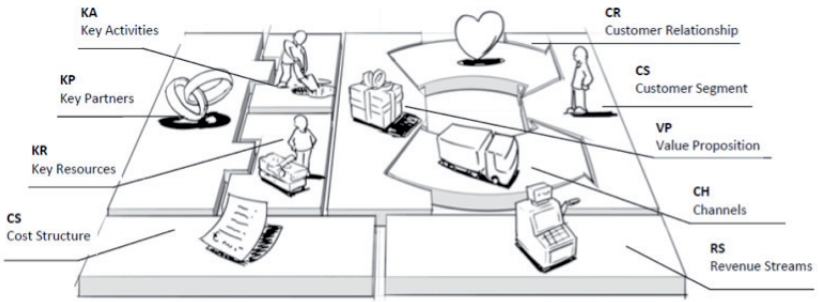

Figure 1: Osterwalder & Pigneur's "Business model canvas" [8].

services. We knew from the One Stop Shop project that various kinds of business model approaches and collaboration between various key actors could be expected to bring new ideas about innovation development. We wanted to network various stakeholders from various levels in the value chain, and find new business model development opportunities that mirror the companies involved as well as the company in charge of the business.

During the Business Zoo, a business model generation session was held at the end of the event. It followed after an information and analysis phase where a broad understanding of the competition arena in which the business model is to operate was explored by the various participants. First, this exploration was done by allowing different experienced professionals to present a 'pitch' and an introducing question. Secondly, the participants were asked to reformulate and discuss questions and solutions in smaller groups. Thirdly, the participants were grouped into actor categories, and were asked to brainstorm on renovating a particular house. In this exercise, the homeowner was given a central role in enforcing strict and ambitious demands, so that the supply side actors were forced to think from the client's perspective. We used a predefined 'animal gathering' canvas to facilitate this process. Five selected housing renovation case studies were discussed in ten groups of minimum five participants. An effort was undertaken to compose each group in such a way as to include consequent actors in the home renovation value chain: informing, consulting, responsible, executing and quality assuring actors [5].

At the end of the day, the participants were then urged to take up the challenge of developing new business models, expanding the previous case development to the volume market. The practical cases of housing renovation were used to better understand how mainly Belgian companies, with the knowledge support of international stakeholders, could address the development of integrated renovation services and to find starting situations of business development. The preliminary analysis of information and the networking effort formed a foundation from which a business model was developed in a last session in order to address the volume market development of the housing renovation services previously proposed on a singular case, and related to the ideas and experiences of the actors present in each group. A company in charge of the future business collaboration was selected amongst the group members to draw up a business model for new activity. We note that the information gathered during the case study discussion which happened before the business model generation session was immediately used on the business model canvas [14], especially to preliminarily define the customer segment and the detected customer relationships.

3. EXPERIENCES FROM THE BUSINESS ZOO

Putting the business model generation session in the end of the workshop programme, helped companies to first understand each other's activities and experiences. This process helped to understand that making strategic choices also includes being clear on how the participant can engage from its current position, as well as from a future perspective. The case study discussion helped the participant to focus the discussion of a specific market segment.

Interestingly, the business model generation exercise with various case studies, defined different key actors and different customer segments for various types of renovation. The following Table 1 gives an overview of the types of actors that took a lead to develop business models, and the customer segment that was defined for volume market development of similar renovations. Remarkable is that only in a few groups, a contractor business was directly chosen for business development. For example, for a 'speedy' villa renovation, a prefab oriented actor took the lead for business development. For the home extension business, a company was modelled with an architect as lead actor. For collective renovation, a consultant was chosen key actor. For a monumental renovation, business was developed for a project manager/architect – allied with a contractor - as an interface between the client and other actors in the home renovation value chain. For another renovation with monumental value, a networking actor was chosen as key actor.

Renovation case study	Lead actor for business development	Targeted customer segment
Villa renovation	Contractor	Customers that also want to achieve other goals when they are renovating, not just related to energy use
Villa renovation	Prefab oriented actor	High-income families who cannot/will not leave their homes during renovation
Home extension	Architect	Young homeowners, who might be financially challenged
Collective renovation	Consultant	Housing organizations
Monumental renovation	Project manager/architect	Rich parents, in their 50s, well educated, well aware of environmental problems
Monumental renovation	Network actor	Building owners, public and private

Table 1: Proposed single-family renovation cases, main actor who took the lead to develop a business model for such cases, and market segment defined by joint decision of the various actors in groups for a volume market approach.

Table 2 shows the results of the business model generation exercise where the contractor took the lead. It shows that contractors might be capable to define their business model more specifically towards integrated renovation services. The market segment was not defined very specifically, but the group understood that the contractor needs to be prepared to offer specific values like quality and timely execution, higher comfort and energy savings. The group understood that the contractor needs to invest in quality assuring services, education of their work force and join hands with consultants and architects in order to reach these goals. Also the group noted the importance of unburdening the clients. For example the following ideas were formulated: 'keeping the wallpaper', 'upgrading the garden'. The group further recommended the contractor to make sure that one invoice comes from one single party. The contractor preferred regular communication channels like developing close personal relationships. In the end of the session, the idea emerged to have 90% fixed price and 10% based on energy efficiency, but the group finally decided that the execution of this idea would be too risky and cumbersome.

<table>
<tr>
<td rowspan="2">KEY PARTNERS
Technical advice
Architect
Implementing companies</td>
<td>KEY ACTIVITIES
Planning
Networking
Education
Renovation
Quality control</td>
<td rowspan="2">VALUE PROPOSITIONS
Better indoor climate (comfort) and lower energy bill (level energy efficiency)
No stress, advice to keep wall paper
Timing and within budget
Good execution quality and preparation
Upgrade garden
Options available</td>
<td>CUSTOMER RELATIONSHIPS
Trust based
Close personal</td>
<td rowspan="2">CUSTOMER SEGMENTS
Owner occupied single family houses
High income
Families who cannot/will not leave their homes during renovation</td>
</tr>
<tr>
<td>KEY RESOURCES
Skilled workers
A good network
Capital</td>
<td>CHANNELS
Mouth to mouth
Architects
Local home owner teams</td>
</tr>
<tr>
<td colspan="3">COST STRUCTURE
Management & labor costs
Financing & offices
Marketing costs – publicity</td>
<td colspan="2">REVENUE STREAMS
Fixed but changes based on "unit costs"
Invoice from one party</td>
</tr>
</table>

Table 2: Results of business model generation exercise for a contractor offering integrated renovation services for villa renovation.

Table 1 showed that business for integrated renovation services does not necessarily have to emerge from the contractor. In fact, some of the business models emerged in various groups because contractors in various groups were not at all keen to take the lead to offer integrated renovation services. An alternative business model emerged from the same type of villa renovation. These business model generation experiences are illustrated in Table 3 for a group in which a prefab-oriented company was chosen to take the lead for market development of smart and speedy housing renovation. The lead company understood that the value proposition of speed can make a huge difference in obtaining a market segment. All other value propositions emerged from the speed idea. The group reflected that in order to deliver speedy renovation a large number of preparation days and careful planning is needed. The amount of days between the order and execution can be large but the number of days needed to execute once planned can be minimal. Everything can be planned into such a great detail that everything is known from the start. The traditional 'trust-based' customer relationships can therefore redefined towards 'evidence-based' relationships. The group aimed much higher than the traditional contractor regarding communication channels (involving all media) and was willing to invest in networking and lobbying for subsidies to promote their innovative solutions. A main detected barrier was that this company development would take a lot of time and would have a high start-up cost. First projects would also have a high cost due to testing requirements, so the group decided to focus on rich customers first.

<table>
<tr>
<td rowspan="2">KEY PARTNERS

Prefabrication company

Architect (in a planning role) and quality assurance companies</td>
<td>KEY ACTIVITIES

Time management, planning and monitoring</td>
<td rowspan="2">VALUE PROPOSITIONS

Speed: minimize the amount of days the workers need to be around the house

Use of prefab materials, time management, fixed price</td>
<td>CUSTOMER RELATIONSHIPS

Client can check everything beforehand and see the quality himself beforehand</td>
<td rowspan="2">CUSTOMER SEGMENTS

High-income customers wanting total, speedy renovations</td>
</tr>
<tr>
<td>KEY RESOURCES

Trained personnel, a lot of knowledge and human resources</td>
<td>CHANNELS

All media (tv, internet, radio,..)

Also mouth to mouth, personal advice

Municipalities giving subsidies and marketing the idea</td>
</tr>
<tr>
<td colspan="3">COST STRUCTURE

Study costs, training costs, testing every single project in labs</td>
<td colspan="2">REVENUE STREAMS

More pay because of the fast execution (less trouble)

Possible subsidies</td>
</tr>
</table>

Table 3: Results of business model generation exercise for a prefab-oriented company offering integrated renovation services for villa renovation.

Several other business models were defined according to the housing typologies defined in Table 1, which are described in a separate document [2, 6, 8]. Customer value propositions varied, but for most cases the value propositions of quality assurance and guaranteed energy performance were identified, while various supply side actors stated having difficulties with obliging these customer value propositions. All groups found it essential to keep the customers informed, so they feel included in the process and on top of the decision-making. The social housing oriented group even suggested providing weekly information to the customer, not only during construction but also afterwards to follow-up the performance. In various groups, building fairs, local government information points, telesales, social networks and serious gaming were noted as additional communication channels. In one group high importance of having access to a demonstration project was expressed to convince customers. A majority of groups found it crucial to have only one contact person for the homeowners, to make the service more accessible and less confusing. Particularly quality assurance, energy performance guarantee and definition of responsibility formed bottlenecks for various actors. Various groups found that these barriers can only be eliminated with training, capacity building, and creating confidence in execution quality of works so that actors can come closer to accepting responsibility for the end result. In all groups skilled work force and collaboration with other actors (particularly architects and/or quality assuring actors) were defined as essential. Some groups defined their revenues as percentages of the total cost, while others looked for close collaboration with banks or for dynamic pricing systems. Two groups suggested including penalties or rewards in function of energy reduction. Two groups noted that higher income families or empty nesters might want to pay more for quality; another group started exploring solutions for clients with limited financial capacity like for example starters who just bought their house.

4.DETECTED BARRIERS AND OPPORTUNITIES FOR BUSINESS MODEL DEVELOPMENT

After the business model generation process, the group members were asked why they think the proposed business model could fail or succeed. The following ideas were noted in groups on why their proposed One Stop Shop business model could fail:

- The proposed business model can be too costly or too complex to execute. A financer is needed for the setup of One Stop Shop businesses.
- People are not ready to gamble with something as important as their home, so the offer should be very secure and proven.
- A big challenge is dividing the responsibility between the various parties in the cooperation, as the customer should be able to hold the One Stop Shop responsible as a single unit. There might be potential legal pitfalls when several actors are involved in renovating a private home. After buying a product or service, the consumer may go back to the seller with complaints and claim replacement, repair or compensation. If the One Stop Shop responsible invoices the complete package it is this legal entity that also takes on all responsibilities for all construction work and installations executed in the house. An issue to be resolved beforehand it how to distribute the responsibilities among the involved actors.
- Project management, including planning and communication is a major challenge. Managing the price setting needs careful planning and effective work procedures, to keep the time spent on each project down, while ensuring good quality. Clear communication is needed between collaborating actors and with the client. Today there is a lack of cooperation between the various professions. Every actor might think of his/her profession without actually thinking as One Stop Shop. Actors might stick to “classic way works”. Planning is needed for how to secure that the right competence is at right place and time. Also, a network of collaborators and clients can become big so there is a risk that less time is being reserved by repetitive actors to serve an individual client. One central partner needs to engage in communication and distribute value and responsibilities through the chain of actors. A lot of attention is needed to avoid bad execution. Only good planning is not enough, as bad execution can ruin the final result and leave the company with bad reputation and financial losses.
- It is very important that the various planners, project managers and craftsmen involved are updated on the subject of energy-efficient renovations and specifically on technical and collaboration issues crossing various skills.

This includes also scheduling a training program for actors who need it.

The following ideas emerged on why the proposed One Stop Shop business models for integrated renovation could be successful:

- A One Stop Shop offers easy access to energy renovation for the customer.
- Defining a leader for a One Stop Shop shows who is responsible for resources and finding new market segments and allows for the development of clear understandings, roles and communication.
- An orientation towards prefabrication can offer a fast solution, a total quality oriented concept.
- The guarantee for a certain energy saving is appealing to several types of customers.
- One Stop Shops for integrated renovation services have low possibility of failure when well defined as a business. One group noted: “When enterprise cooperation is working, almost anything can be achieved by the combined effort”.

In Flanders, there are about two million single-family homes. Only about 27% of these homes were built after 1981. Many of the older houses need a major renovation in the coming decades. At present there are no enterprises offering a One Stop Shop service for integrated house renovation. The One Stop Shop project showed that One Stop Shop as a business concept for house renovation is emerging in several countries. The Business Zoo and the international business examples showed many ways how a One Stop Shop could be organized. For example, different actors can take a central role in business development. Given the number of privately owned houses and old building stock in Flanders and Belgium, good preconditions exist that favour the development of integrated single-family home renovation. Existing examples of integrated house renovation in Flanders, show that certain types of owner-occupants are motivated to engage in this type of renovations. Having these owner-occupants as focus for market development, enterprises may start developing One Stop Shop service business models. The experiences of the Business Zoo show us that we do not start from scratch - there are existing information channels, existing quality assurance parties, contractors experienced with energy efficient measures, clients who know and demand environmentally responsible buildings. However, the main bottlenecks that have to be eliminated are: addressing financing, quality/energy guarantee, definition of collaboration and responsibility as main ones.

At this stage, the development of a One Stop Shop service should be considered an innovation and should be treated and supported as such in Flanders. Frontrunners (emerging companies) are now

needed to gain regional experience. It should not be expected that many enterprises will engage in business model development for One Stop Shop, but there will be frontrunners (as with the introduction of any innovation). The One Stop Shop project and the Business Zoo only showed us a fraction of the potential, status, possibilities, and difficulties on the market, with some transfer of experiences and observation from countries outside Belgium. The next step should be to use this experience/knowledge to enable realistic development of innovative client-oriented business models for frontrunners. PHP will continue to explore the possibility for direct collaboration with SMEs to enable realistic development of innovative client-oriented business models for those enterprises that are willing to act as frontrunners in this market.

5. CONCLUSION

The Business Zoo provided important first experiences that can help companies to tap an important business potential of innovative integrated housing renovation services. Business developers should keep in mind that a main barrier why renovation is not happening as much as needed for reaching climate mitigation goals, is that homeowners see renovation as a burden. During the business model generation process we discovered several barriers and opportunities related to implementation of a One Stop Shop business model for renovation of single family homes, while unburdening the customer.

Many 'traditional' companies are still not used to thinking client-oriented and their business activities do not aim at unburdening the client in the process of house renovation. The working group experiences showed that lead actors for One Stop Shop development in Belgium are not necessarily contractors, but might also be other actors who can more readily address customer values. Depending on the targeted housing segment, promising lead actors emerged such as prefab-oriented companies, consultants, architect/ managers or network actors.

Specifically, various types of customers value quality assurance and guaranteed energy performance, but various supply side actors have difficulties with obliging these customer values. Supply side actors think they can more readily accept responsibility for these issues when they engage in training and capacity building, when they explore high-quality examples and create customer confidence. Also, various additional customer values were detected like having a single responsible person as contact, having a better comfort, integrating quality assurance, guaranteeing energy performance and communication throughout the renovation process. The business approach may be different when targeting specific single-family ownership sub-segments like empty-nesters or young starters.

One Stop Shop frontrunners tend to think beyond the usual communication channels and trust-

based relation structures. To achieve business development, various costing, revenue and collaboration structures were imagined. However, skilled work force and careful planning and communication are always recognized as essential elements in achieving integrated renovation. A One Stop Shop should clarify beforehand the responsibility of each collaboration partner and how each of the involved partners will assure quality of their work during the process. A system and functions for communication and quality assurance during (and in some cases also after) the renovation must be a part of the One Stop Shop.

Business developers should think about how to develop One Stop Shop services for integrated renovation, particularly since quality-oriented, speedy and energy efficient renovation are serious customer values for various types of customers. Now regional examples of emerging One Stop Shops business developments are needed. Existing One Stop Shop businesses in Norway and Finland already show the way forward for innovation and for collaboration in the home renovation value chain. The Business Zoo was a first event of its kind, very interactive and focusing on the concept of integrated housing renovation and the actors involved. We intend to continue such events and help companies with developing One Stop Shop innovations. Based on the experiences with this first edition, we think that future editions of the Business Zoo should use real case studies defined by clients and procurers. This framework is expected to more effectively lead to engagement of businesses in developing real opportunities towards business models.

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